

6. The loudspeaker should be connected by a *twisted* pair of wires to the L.S. terminals marked "8 ohms" or "16 ohms," whichever is closer to the advertised impedance of the loudspeaker. The amplifier will also operate from a loudspeaker of 4 ohms impedance if the wire connected to terminal 2 on the output transformer T1 (see drawing on page 7) is unsoldered and transferred to the joined terminals 4 and 5. The 4 ohms loudspeaker should then be connected to the L.S. terminals marked "8 ohms."

It will be seen from the circuit drawing on page 7 that one side of the loudspeaker winding is connected to the chassis, and no part of the loudspeaker wiring should be earthed elsewhere. The D.C. resistance of the connecting wires should be as low as possible, preferably not more than one-tenth the D.C. resistance of the loudspeaker.

It is bad practice to operate any power amplifier without a loudspeaker, and if it is desired to mute the loudspeaker by switching it out of circuit this should be accomplished by using a change-over switch which replaces it with a resistor of corresponding value and rating.

7. THE CHOICE OF A LOUDSPEAKER SYSTEM

Space does not allow for detailed explanations, but the following points should be noted.

- (a) If you want the best results do not mount the loudspeaker in the same cabinet as the turntable and pickup.
- (b) The assembly commonly called a "loudspeaker" consists of a magnet, a moving coil, and a diaphragm (or "cone"). This assembly is a *motor*. You do not listen to a motor; you listen to a *loudspeaker system*, which consists of one or more motors mounted in a *housing*, (baffle, box, cabinet, or horn). The housing plays a profound part in determining the quality of reproduction. The effects of various housings are discussed by G. A. Briggs in his book "*Loudspeakers*."
- (c) One good motor, properly housed, is capable of giving good results. Two good motors properly housed will give noticeably better results: in this case one motor is designed to reproduce bass, and the other, treble. A filter ("dividing network") must be used in conjunction with the two motors.

CONNECTING THE "POINT ONE" PRE-AMPLIFIER

1. This unit will mount on a motor-board or other panel of any thickness, through a cut-out of $9\frac{1}{8}'' \times 3\frac{1}{2}''$ (24.3 cms. \times 7.7 cms.). Five wood-screws (one spare) are supplied for fixing the pre-amplifier to a cabinet.
2. A multiple cable of 3 ft. (1 metre) is supplied for connecting the pre-amplifier to the TL/10 power amplifier. The male plug on this cable fits the socket on the power amplifier marked "PRE-AMP": the female plug on the cable fits the male socket on the pre-amplifier marked "FROM AMPLIFIER."

3. THE CONNECTION OF PICKUPS.

The pickup is connected to the co-axial socket marked "PICKUP" on the back of the pre-amplifier. On the same horizontal level is the input volume control associated with the pickup, and immediately below are the two terminals for a load resistor, if required, (see 3j, page 4).

The greatest care has been taken in the design of the pre-amplifier to ensure that any pickup generally available in the world can be connected to give optimum results, i.e. the highest quality obtainable from the chosen make of pickup.

Our prime aim is for you to obtain the optimum results from the pickup of your choice. Please follow our instructions very carefully, even if they appear to conflict with other advice.

We know from experience that the main troubles encountered by the music-lover at home are with the reproduction of records. There are five major reasons for these troubles:—

- (a) Many records (perhaps the majority) contain noticeable distortions due to lack of care in recording and/or processing. These distortions show up as "rattle," high surface noise, recorded hum and rumble, and recorded "wow." Shrill treble may be due to a poor record, and/or due to a pickup having its high-frequency resonance within the audible range.
- (b) No pickup is perfect and the majority have performances *very much* below those which are attainable. You will soon save the outlay on a first-class pickup because it will preserve your records.
- (c) Hum. This often arises because insufficient attention is given during the design of a pickup to the commonly-found circumstances in which it will operate, i.e. near an electric motor and near a power amplifier. Hum can also arise from incorrect connection of the pickup by the user.
- (d) "Rumble." Vibration from the motor is transmitted to the pickup stylus and appears in the sound output as a rumbling or humming noise. Rumble disappears when the pickup is lifted from the record.